

## **ABSTRACT**

5 A vehicle including a ground speed sensor arranged to detect the speed of travel of the vehicle on the ground and including a wave transmitter arranged to transmit waves toward the ground, a wave receiver arranged to received waves reflected from the ground and a processor coupled to the transmitter and receiver to determine the speed of travel based on the transmitted waves and received waves. The waves are transmitted in pulses or modulated such that the processor is able to determine the distance between a wave-transmission and reception point and the ground (by time of flight for ultrasonic and electromagnetic waves or phase difference-for electromagnetic waves) and the velocity of the vehicle (using Doppler analysis).